AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (original) A system for performing fluid administration on a patient comprising :

- a single liquid pump (1),

- a liquid distribution system (2) connected to said pump (1) in such a way that liquid can flow from the liquid distribution system (2) to the pump (1) via a pump enter line (56) and vice versa via a pump exit line (57),

- liquid supply means (3) for supplying liquid to a patient (4) via said liquid distribution system (2) and said pump (1),

- a patient conduit (5) adapted for connecting said liquid distribution system (2) to a patient (4),

characterized by the fact that said liquid pump (1) is unidirectional and that said liquid distribution system (2) comprises switching means designed to alternatively connect the pump enter line (56) with the supply means (3) or with the patient conduit (5).

2. (currently amended) A system according to ~~the previous~~ claim 1 furthermore comprising a drain line (25), said switching means being also designed to alternatively connect the pump exit line (57) with the drain line (25) or with the patient conduit (5).

3. (currently amended) A system according to claim 1 ~~or 2~~ wherein the liquid pump (1) is a peristaltic pump.

4. (currently amended) A system according to ~~the previous~~ claim 3 wherein the peristaltic pump is rotatable.

5. (currently amended) A system according to ~~anyone of the previous claims~~ claim 1 wherein said liquid distribution system (2) comprises two distinct hub chambers

(7,8), the first hub chamber (7) including at least one liquid supply port with dedicated valve means (9), one patient port with dedicated valve means (10) and one pump inlet (26) , the second hub chamber (8) including at least, one patient port (18) or warmer port (16) with dedicated valve means and one pump outlet (27), said system furthermore comprising control means arranged to close said patient port (10) of the first hub chamber (7) when said liquid supply port (9) is open and vice versa.

6. (currently amended) System according to ~~the previous~~ claim 5 wherein said second hub chamber (8) furthermore includes at least one drain port with dedicated valve means (11), said control means being also arranged to close said patient port (18) of the second hub chamber (8) when said drain port (11) is open and vice versa.

7. (currently amended) A system according to claim 5 ~~or 6~~ wherein said liquid distribution system (2) only includes two hub chambers (7,8).

8. (currently amended) A system according to ~~anyone of the previous claims~~ claim 1 furthermore comprising a warmer system (28), a cavity (17) including a warmer port(19) and a patient port (16), said patient port (18) of the second hub chamber (8) being connected to said warmer port (19) via said warmer system (28).

9. (currently amended) A system according to ~~the previous~~ claim 8 wherein said warmer system (28) is a warmer in-line.

10. (currently amended) A system according to ~~the previous~~ claim 9 wherein said warmer in-line comprises a warming plate contained therein, such warming plate being covered by a warming pouch like a sock.

11. (currently amended) A system according to ~~the previous~~ claim 10 wherein said warming pouch is composed of a liquid channel which forces the liquid to be maintained within such warmer for a certain duration at a given flow rate.

12. (currently amended) A system according to ~~anyone of the previous claims~~ claim 1 wherein said first hub chamber (7) includes several liquid supply ports with respective valve means (9).

13. (currently amended) A system according to ~~the previous~~ claim 12 wherein said liquid supply ports (9) are connected to respective liquid supply means having each a different kind of liquid.

14. (currently amended) A system according to ~~anyone of the previous claims~~ claim 1 wherein said liquid pump (1) is composed of a tubing and rolling surface on which the tubing is compressed once the cartridge is inserted into a pumping device containing rollers.

15. (currently amended) A system according to ~~the previous~~ claim 14 where said rollers (22) are of a conical shape in such a way as to be self inserted in the pump race, i.e. without any other mechanism.

16. (original) A system according to claim 14 where said rollers are of a spherical shape.

17. (currently amended) A system according to ~~anyone of the previous claims~~ claim 1 wherein said liquid pump (1) and said liquid distribution system (2) are fixed together to form a single cartridge.

18. (currently amended) A system according to ~~the previous~~ claim 17 wherein said liquid pump (1) is fixed to said liquid distribution system (2) by vibration attenuation means in order to minimize the vibration on the liquid distribution system (2) when the pump is operating.

19. (currently amended) A system according to ~~anyone of the previous claims~~ claim 1 wherein all hub chambers, including said ports and ports, are made within one single part.

20. (currently amended) A system according to ~~the previous~~ claim 19 wherein said single part is an injected part of plastic material.

21. (currently amended) A system according to ~~anyone of the previous claims~~ claim 1 wherein each hub chamber (7,8) is closed with an upper wall made of a flexible membrane (13), said membrane including valve elements (39) situated above each of

said port or port with valve means, said valve elements (39) being designed to close said port or port when the membrane (13) moves downwardly.

22. (currently amended) A system according to ~~the previous~~ claim 21 wherein said membrane is molded.

23. (currently amended) A system according to ~~the previous~~ claim 22 wherein said membrane is made of silicone .

24. (currently amended) A system according to ~~the previous~~ claim 23 wherein said membrane includes liquid tight joints.

25. (currently amended) A system according to ~~anyone of the previous claims~~ claim 1 wherein said liquid distribution system includes liquid tight joints arranged in such a manner that they allow a liquid tight connection between said liquid distribution system and a membrane situated on it.

26. (currently amended) A system according to ~~anyone of claims 21 to 24~~ claim 21 wherein said membrane contains protruding elements designed for a liquid tight connection between said hub chambers.

27. (original) A system according to claim 21 wherein each of said valve elements (39) is designed to be clipped to an actuator (34), e.g. an electromagnetic actuator or a magnet, arranged above said membrane (13).

28. (currently amended) A system according to ~~the previous~~ claim 27 wherein each of said valve elements comprises a cavity designed to receive and hold the plunger of an actuator, said cavity having an height which substantially corresponds to at least the valve displacement.

29. (currently amended) A system according to ~~anyone of claim 21 to 28~~ claim 21 wherein said membrane (13) is press-fitted along its external border to the liquid distribution system, the membrane (13) being furthermore held by a frame (14) .

30. (currently amended) A system according to ~~anyone of claim 21 to 29~~ claim 21 wherein said membrane (13) contains a portion (15) which is forming part of a pressure sensor.

31. (currently amended) A system according to ~~the previous~~ claim 30 wherein the active area of said pressure sensor is designed to be more flexible than the remaining area.

32. (currently amended) A system according to claim 30 ~~or 31~~ wherein said pressure sensor has the shape of a disc of which the periphery is gripped, said disc furthermore comprising an annular ply.

33. (currently amended) A system according to ~~anyone of claims 30 to 31~~ claim 30 wherein said pressure sensor is situated on the patient line, independently from said hub chambers.

34. (currently amended) A system according to ~~anyone of claims 30 to 33~~ claim 30 furthermore comprising a second pressure sensor, said second pressure sensor being in connection with the first hub chamber.

35. (currently amended) A system according to ~~anyone of the previous claims~~ claim 1 wherein said liquid distribution system includes an air sensor situated on the patient conduit side.

36. (currently amended) A system according to ~~anyone of the previous claims~~ claim 1 comprising a cartridge loading mechanism which allows a tight connection between the membrane and the valves and the liquid distribution system.

37. (currently amended) A liquid distribution system (2) for a system performing fluid administration on a patient as defined in ~~anyone of the previous claims~~ claim 1.

38. (currently amended) A pressure sensor for a system for performing fluid administration on a patient as defined in ~~anyone of claims 30 to 36~~ claim 30.

39. (currently amended) A system according to ~~anyone of the previous claims~~ claim 1 furthermore comprising a window for detecting correct positioning of the tube.

40. (currently amended) Method of use of the system as defined in ~~anyone of the previous claims~~ claim 1 wherein said patient port (10) is closed when said liquid supply port (9) is open and vice versa.

41. (currently amended) Method according to ~~the previous~~ claim 40 wherein the pressure is always maintained positive with respect to the drain.

42. (currently amended) Method according to claim 40 ~~or 41~~ wherein said liquid is always pumped in the same direction.

43. (currently amended) Method according to ~~anyone of claims 40 to 42~~ claim 40 consisting of sensing the liquid pressure entering and exiting the liquid distribution system and, if necessary, correct the pump flow rate in accordance with the pressure difference.

44. (currently amended) Method according to ~~anyone of claims 40 to 43~~ claim 40 consisting in regulating the pump flow rate according to a known predetermined alteration of the flow rate by aging of the tubing.

45. (currently amended) Method according to ~~anyone of claims 40 to 44~~ claim 40 wherein the drain phase is a function of the drain speed, said drain phase being ended when the speed is reaching a certain value based on the patient peritoneal cavity pressure measurement.

46. (currently amended) Method according to ~~anyone of claims 40 to 45~~ claim 40 wherein the peritoneal volume filled during a cycle is a function of the intra-peritoneal pressure.

47. (currently amended) Method according to ~~the previous~~ claim 46 wherein the peritoneal cavity is partially emptied as soon as the pressure has reached a predefined threshold.

48. (currently amended) Method according to ~~anyone of claims 40 to 47~~ claim 40 consisting in the use of a low Natrium concentration liquid for the last exchange cycle to improve ultra-filtration.

49. (currently amended) Use of a system as defined in ~~anyone of the previous claims~~ claim 1 for peritoneal dialysis.